Department of Budget & Management

State of Maryland
Information Technology
Master Plan

FY 2007

December 2005

The Governor, Lt. Governor, and Secretary of the Department of Budget and Management (DBM) have provided clear direction that Executive Branch Agencies need to become increasing more efficient and innovative in the delivery of services. The DBM Office of Information Technology (OIT) recognizes the vital role technology plays in the effective delivery of services to the citizens of the State. It is incumbent on the Executive Branch Agencies to use technology to achieve these two primary goals of increased efficiency and improved service delivery. The intent of this plan is to provide an executive summary on the information technology strategies that are being implemented to achieve those results.

There are key business drivers that influence this overall strategy and aid in identifying beneficial strategic initiatives. For the State of Maryland, the fundamental business drivers are the five Pillars of the Ehrlich-Steele Administration: Fiscal Responsibility, Education, Health and the Environment, Public Safety and Safer Neighborhoods, and Commerce.

The information technology (IT) goals to support these drivers are to (a) adapt technology that improves the quality of service to citizens, (b) collaboratively consolidate existing technology and information to increase the efficiency of agency operations, and (c) implement appropriate security systems and procedures to protect the States assets. These goals represent a continuing evolution of the State IT Master Plan goals that were established in FY2005 and enhanced in FY2006, and influence the direction of IT projects and investment decisions.

Substantial progress has been made by agencies, individually and collectively, towards realizing these goals. Agencies are increasingly collaborating to deliver services in an efficient and effective manner. This growing inter-dependency necessitates that enterprise IT planning for the State of Maryland continues to focus on cross-unit efficiencies through the implementation of a hybrid combination of statewide and line of business information technology and telecommunication infrastructures and solutions. Collaboration and standardization of agency IT operations provide a natural impetus towards the next steps in the maturation of statewide IT capabilities.

Eight strategic initiatives have been identified that provide a continuing evolvement of a concise sustainable direction for information technology across all state agencies. They are:

1. Establishment of technical standards and enterprise architecture.
2. Further development of professional project management.
3. Establishment of a consolidated and enhanced disaster recovery site.
4. Complete building and migration to networkMaryland.
5. Consolidation of common information platforms.
6. Consolidation and standardization of agency web sites.
7. Modernization of core statewide business systems.
8. Interoperability of wireless public safety communications systems.

Significant progress has been made in previous years towards accomplishing each of the strategic initiatives: The results of the initial inventory phase of the Maryland Technology Architecture Framework (MTAF) project have proven exceptionally beneficial; Management of IT projects has been significantly advanced with the implementation of the Project Management

Oversight Methodology and the establishment of Project Management Offices at appropriate agencies; Opportunities for consolidation of service delivery, applications, or operational requirements continue to be a fundamental tenet at all levels of the Executive Branch; networkMaryland^{TM} is nearing completion; and, the www.maryland.gov portal, in conjunction with the standardization of web sites across the agencies, has resulted in improved service delivery and customer satisfaction.

Technical Standards and Enterprise Architecture

State agencies have historically operated in a largely decentralized fashion with a great deal of autonomy. This has provided a productive environment for customized solutions and individual problem solving. However, a large diversity of technology platforms and multiple versions of similar hardware and software have evolved in this environment. In addition to high maintenance and training costs, the diversified technology base has limited the benefits of economies of scale, statewide interoperability, and resource sharing. In the recent past the IT industry has introduced numerous standards based products that can now be used in lieu of custom products.

In order to realize these benefits, a statewide technical standards and enterprise architecture (EA) has been established to foster an environment for strategic IT planning and operational decision-making processes. To accomplish this, OIT initiated the Maryland Technical Architecture Framework (MTAF) project. Begun in FY 2005, the MTAF project has resulted in the Technical Reference Model (TRM), a repository of information characterizing statewide IT assets. The TRM is the foundation for EA and has become a valuable tool supporting State agency planning and operational requirements.

The MTAF project, with the collaborative support of Executive Branch agencies, continues to further develop the TRM and EA, focusing on the governance structure to oversee the continued accuracy of the technical standards; maturing technical standards committees into a cohesive standards board; integrating EA into the IT master planning and project request processes; and expanding the TRM to include deployed systems and the business functions they support. Incremental benefits will continue to be realized as the EA is developed, with maximum value being achieved when it is fully developed. Full implementation of the EA is dependant on subsequent fiscal year funding.

Professional Project Management

Maximizing the State's investment in information technology requires that investment decisions be based on sound business case justification and that all projects have the common attributes of strong executive sponsorship, involvement of the systems users throughout the project, and follow prescribed processes and methodologies consisting of best practices for project execution. Additionally a successful project must have sufficient and appropriate project resources.

A number of processes and methodologies have been established to execute and oversee the State's portfolio of Major IT Development Projects (MITDPs). The Systems Development Life Cycle (SDLC) serves as a road map for agencies to follow through the subsequent stages and

activities required for project success. All MITDPs are required to be planned and executed according to SDLC requirements.

To ensure that projects satisfy functional requirements and expectations for resource allocations, a Project Management Oversight Methodology has been instituted. It consists of a multi-tier methodology by which all major IT projects are to be managed and further defines responsibilities for project management and project oversight. There are four tiers: Agency Project Management, OIT Project Oversight, Peer Project Review, and 3rd party Independent Verification and Validation (IV&V).   All MITDPs are required to comply with this methodology.

Processes and methodologies by themselves will not necessarily create an environment that leads to successful projects. Project success typically occurs when the project staff is qualified and experienced in the planned technologies   and the business environment in which the system will operate. It is also essential that project teams be given the responsibility, the authority, the resources and the tools necessary to succeed. It is the responsibility of the Project Oversight organization to validate the presence of these key components. Significant process has been made and will continue to be made in adding certified professional project managers to agency IT staffs.

OIT has established a Project Management Office (PMO) staffed by certified project managers to provide oversight of all State MITDPs, to assist agency project managers in developing comprehensive IT statements of work and offer guidance on implementing and managing projects according to the State's Systems Development Life Cycle (SDLC). PMO's have been established in several agencies that have significant IT projects planned or under way, and are providing structured, repeatable project governance and guidance for all MITDPs. These PMOs are collaborating in developing and sharing best practices and lessons learned in support of continued process improvement. This collaborative environment is resulting in a statewide symbiotic Project Management Center of Excellence.

The continuation of this initiative is essential to the management of the State's Portfolio of MITDPs. Existing processes have been and will continue to be refined, new processes are being established and effective project oversight will be appropriately scaled relative to the characteristics of each specific project.

Consolidated Disaster Recovery Site

As discussed earlier, State agency IT environment has developed autonomously over a period of years. Nearly every agency manages systems that are critical to their mission. Each agency has established some level of backup and recovery processes. The recovery arrangements are inconsistent and not coordinated across agencies. Consequently, a major regional disruption, such as a widespread power grid failure or natural disaster could cause State agencies significant difficulties in restoring important services and systems. It is probable that in aggregate State agencies are spending more on cold, warm and hot sites than it would cost to build a consolidated hot site to support all agencies. There are several existing facilities near major transportation systems that are also in an extra urban or rural location and have extensive broadband capacity nearby.

It is necessary to establish a baseline of current disaster recovery capabilities and effectiveness in order to determine the most appropriate operational and cost effective statewide disaster recovery strategies. OIT is executing a project to identify and quantify critical system operational and service delivery risks, assess the effectiveness of current risk mitigation strategies, and identify options to improve risk mitigation and achieve recovery objectives.

Scheduled for completion in FY 2006, the results of this project will serve as the baseline in developing future disaster recovery project initiatives. As is the case with all major IT projects, this effort will be thoroughly examined in a fully developed business case to validate the investment. Options to develop in-state disaster recovery sites will be evaluated for appropriateness in light of desired characteristics (such as proximity to networkMaryland™, accessibility, cost to acquire, etc.). If the business case justifies the investment, it will then be submitted as an FY 2008 capital project.

networkMaryland Migration

networkMaryland™ provides the means for State agencies, County Governments and Municipalities to securely access the Internet, Internet2, transport data between locations, both Intra and Inter Local Access and Transport Area (LATA), at a cost significantly below that for similar services from commercial carriers. Having access to this capability presents a significant opportunity for agencies to collaborate and centrally host common business applications and services. By operating its own network, the State is isolated from capacity limitations that sometimes occur on commercial networks.

networkMaryland™ continues to provide significant value to the State. The networkMaryland™ project will complete the network's core backbone and establish a point of presence in each of the counties and Baltimore City in FY 2006. Also within this same period, the project will migrate the remaining customers from the legacy Financial Management Information System network to networkMaryland™. Once the migration has been completed, all Executive Branch agencies will be receiving FMIS service from networkMaryland™ and the legacy network will be decommissioned.

Consolidate Common IT Platforms

Significant inefficiencies and unnecessary expense exists when the sixty-five State agencies and commissions each develop and operate individual IT platforms. The agencies each have their own LAN's, WAN's, email systems, support teams, hardware and software maintenance and training requirements. Often this is within the same complex of buildings or in buildings near each other. This makes it difficult to address statewide applications.

This environment is inefficient, insecure, negates any opportunity to take advantage of economies of scale, and weighs heavily on the goal of improved services. With a renewed focus, State agencies have been successful in consolidating applications and systems. Some consolidation has occurred within agencies, between agencies with similar operational requirements, and across all agencies in the State

The suggested approach for this major effort requires an inventory of existing systems and the development of applicable standards consistent with the MTAF initiative. Once a statewide

standard is selected, an implementation strategy will be developed consistent with the enterprise architecture, interoperable products will be obtained, and pilot testing will be undertaken in selected agencies. Over a period of several years, agencies can then migrate to the standard systems as existing systems and versions become obsolete. The investment cost for this strategy will be determined in conjunction with the technology standards initiative.

The Information Technology Advisory Council (ITAC), the MTAF initiative and agency Technology Master Plans will be coordinated to identify these opportunities, validate the feasibility and implement the changes. The eventual replacement of each of these systems and consequently providing improved service to the citizens of Maryland will require firm commitments of resources and funding.

Web Site Consolidation and Standardization

Prior to FY 2005, State agencies managed web sites using differing standards, contractor support, hosting agreements and licensing arrangements. Agency web sites lacked a consistent appearance and method of operation. The process of creating a common look and consistency of operation is known as branding. Previously this was being done at the agency level and those accessing sites of different agencies found them confusing and complicated.

To address this issue, an inter-agency web redesign team produced *Branding Guidelines for State Government Web Sites*. Published in FY 2005, these guidelines, in addition to the web technical standards and guidelines developed as part of the MTAF project, form the core direction for the development and operation of agency web sites. This standardization reinforces Maryland's identity and makes it clear to website visitors that they are on an official Maryland State government web site. Consequently State websites provide a continuity, consistency and integration of agency web sites within the State Portal, www.maryland.gov. In FY07 the statewide branding effort will continue in support of a "one government" approach; improve usability, accessibility and credibility of State government information published via the web.

As agencies build new or revamp existing web sites, this standardization will provide the foundation for the next level of citizen convenience by making it easier to access and link to multiple agency services with a single transaction.

Modernize Core Business Applications

In addition to agencies evaluating opportunities to consolidate within their operational boundaries, it is imperative to identify and plan for the eventual replacement of certain core statewide applications. Specifically, these applications include those that support accounting, finance, procurement, personnel, employee benefits and time keeping.

OIT is executing a project to identify and quantify operational and service delivery risks associated with the current inventory of mission-critical enterprise applications. This project will identify the projected remaining serviceability of each of the systems assessed, create a mitigation strategy, and recommend a long-term strategy to repair or replace these systems. Results will be available for project development and funding requests beginning in FY 2007.

Wireless Interoperability

The current inventory of public safety and first responder voice and data communications systems deployed throughout the State (owned and operated by State, county and local municipality agencies) consists of systems that were constructed on an "as-needed" basis over several decades, and are typically designed to meet the needs of a specific user base. These communications systems often do not permit cross-jurisdictional communications, are primarily voice only, and are unable to be expanded or improved to support increasing functional requirements. In addition, manufacturer support for these older systems is minimal, and in some cases, not expected to continue. These constraints, plus external drivers, such as those mandated by the Federal Communications Commission (FCC), indicate a need to migrate the State's wireless infrastructure to new narrow band technology. In order to address these issues and improve statewide first responder capabilities OIT is working collaboratively with other State agencies, municipal and local governments to identify an enterprise solution for a statewide, interoperable wireless radio system.

OIT is executing a statewide wireless interoperability requirements and proof of concept project to address statewide public safety and first responder voice and data communications. For the first time, state, county and municipal first responder requirements are included in the process. This project will result in defining functional requirements for a statewide wireless interoperable system, a detailed design and implementation strategy for the system, and a proof of concept that demonstrates the design satisfies the functional requirements. Results of this effort will determine if further project development and funding requests are appropriate beginning in FY 2009. Simultaneously, DBM continues with a capital project to build the supporting infrastructure of towers and equipment shelters that will be necessary to implement the system.

Summary

Under the guidance of the Governor, Lt. Governor and Secretary of DBM, the State Information Technology community is on the precipice of making fundamental changes to improve the quality and efficiency of services to the citizens of the Maryland. These changes will be implemented deliberately in a fiscally responsible manner through an evolutionary process, and take several years to fully implement. Some of the benefits have already been realized while others will begin accruing over the next several years.

The success of this strategy is highly dependant on the continued support of the Governor, Lt. Governor, Secretary DBM, Executive Branch senior managers, Legislature, Business Partners and full collaboration of State agencies.